Claims:

1. An optical add-drop multiplexer comprising:

   a first ferrule with an input optical fiber and an output optical fiber stationed therein;

   a first graded index lens;

   a bandpass filter having a particular central wavelength;

   an optical crystal;

   a second graded index lens;

   a second ferrule having an adding optical fiber and an dropping optical fiber stationed therein;

   wherein the first graded index lens, the bandpass filter, the optical crystal and the second graded index lens are successively placed between the first and the second ferrules, an optical multiplexed signal from the input optical fiber is transmitted to the bandpass filter, from which an optical signal having a wavelength identical to the central wavelength of the bandpass filter is output to the dropping optical fiber, and other optical signals having other wavelengths are coupled with an optical signal from the adding optical fiber having a wavelength identical to the central wavelength of the bandpass filter and are transmitted to the output optical fiber.

2. The optical add-drop multiplexer as described in claim 1, wherein the bandpass filter is a thin-film filter.

3. The optical add-drop multiplexer as described in claim 1, wherein the bandpass filter is attached on the first graded index lens.

4. The optical add-drop multiplexer as described in claim 2, wherein the bandpass filter is attached on the first graded index lens.

5. The optical add-drop multiplexer as described in claim 1, wherein a profile of the optical crystal is a generally regular hexagon.

6. The optical add-drop multiplexer as described in claim 1, wherein a profile of the optical crystal is an egg-timer shaped hexagon.

7. The optical add-drop multiplexer as described in claim 1, wherein the first and the second ferrules each define two holes with two optical fibers respectively stationed therein.

8. A multicenter optical add-drop multiplexer module comprising a plurality of optical add-drop multiplexers sequentially connected together from the first to the last, each optical add-drop multiplexer comprising:

a first ferrule having an input optical fiber and an output optical fiber stationed therein;

a first graded index lens;

a bandpass filter having a particular central wavelength;

an optical crystal;

a second graded index lens;

a second ferrule having an adding optical fiber and an dropping optical fiber stationed therein;

wherein the first graded index lens, the bandpass filter, the optical crystal and the second graded index lens are successively placed between the first

and the second ferrule, an optical multiplexed signal from the input optical fiber is transmitted to the bandpass filter, from which an optical signal having a wavelength identical to the central wavelength of the bandpass filter is output to the dropping optical fiber, and other optical signals having other wavelengths are coupled with an optical signal from the adding end having a wavelength identical to the central wavelength of the bandpass filter and are transmitted to the output optical fiber; and

wherein the bandpass filter of each optical add-drop multiplexer has a different central wavelength, the input optical fiber of the first optical add-drop multiplexer and the output optical fiber of the last optical add-drop multiplexer respectively serve as an input end and an output end for optical signals, and the output end of each optical add-drop multiplexer connects with the input end of its adjacent optical add-drop multiplexer.

9. An optical add-drop multiplexer comprising:

a first ferrule having an input optical fiber, an output optical fiber and a third optical fiber stationed therein;

a first graded index lens;

a first bandpass filter having a first central wavelength;

a second bandpass filter having a second central wavelength;

an optical crystal;

a second graded index lens;

a second ferrule having a first adding optical fiber and a second adding optical fiber stationed therein, and a first dropping optical fiber and a second dropping optical fiber stationed therein;

wherein the first graded index lens, the first and second bandpass filters, the optical crystal and the second graded index lens are successively placed between the first ferrule and the second ferrule, an optical multiplexed signal from the input optical fiber is transmitted to the first bandpass filter, from which an optical signal having a wavelength identical to the first central wavelength of the first bandpass filter is output to the first dropping optical fiber, and other optical signals having other wavelengths are transmitted to the second bandpass filter via the third optical fiber, from which an optical signal having a wavelength identical to the second central wavelength of the second bandpass filter is output to the second dropping optical fiber, and other optical signals having other wavelengths are coupled with optical signals from the first and the second adding optical fibers whose wavelengths are respectively identical to the first and second central wavelengths of the first and the second bandpass filters and are transmitted to the output optical fiber.

10. The optical add-drop multiplexer as described in claim 9, wherein the first and second bandpass filters are thin-film filters.

11. The optical add-drop multiplexer as described in claim 9, wherein the first and second bandpass filters are attached on the first graded index lens.

12. The optical add-drop multiplexer as described in claim 10, wherein the first and second bandpass filters are attached on the first graded index lens.

13. The optical add-drop multiplexer as described in claim 9, wherein a profile of the optical crystal is a generally regular hexagon.

14. The optical add-drop multiplexer as described in claim 9, wherein a profile of the optical crystal is an egg-timer shaped hexagon.

15. The optical add-drop multiplexer as described in claim 9, wherein the first ferrule further defines four holes, two of the holes respectively hold the input optical fiber and the output optical fiber therein and the other two of the holes respectively hold two ends of the third optical fiber, and the second ferrule defines four holes with four optical fibers respectively inserted therein.

16. A multicenter optical add-drop multiplexer module comprising a plurality of optical add-drop multiplexers sequentially connected together from the first to the last, each optical add-drop multiplexer comprising:

a first ferrule having an input optical fiber, an output optical fiber and a third optical fiber stationed therein;

a first graded index lens;

a first bandpass filter having a first central wavelength;

a second bandpass filter having a second central wavelength;

an optical crystal;

a second graded index lens;

a second ferrule having a first adding optical fiber and a second adding optical fiber stationed therein, and a first dropping optical fiber and a second dropping optical fiber stationed therein;

wherein the first graded index lens, the first and second bandpass filters, the optical crystal and the second graded index lens are successively placed between the first ferrule and the second ferrule, an optical multiplexed signal from the input optical fiber is transmitted to the first bandpass filter, from which an optical signal having a wavelength identical to the first

central wavelength of the first bandpass filter is output to the first dropping optical fiber, and other optical signals having other wavelengths are transmitted to the second bandpass filter via the third optical fiber, from which an optical signal having a wavelength identical to the second central wavelength of the second bandpass filter is output to the second dropping optical fiber, and other optical signals having other wavelengths are coupled with optical signals from the first and the second adding optical fiber whose wavelengths are respectively identical to the first and the second central wavelengths of the first and the second bandpass filters and are transmitted to the output optical fiber; and

wherein the bandpass filter of each optical add-drop multiplexer has a different central wavelength, the input optical fiber of the first optical add-drop multiplexer and the output optical fiber of the last optical add-drop multiplexer respectively serve as an input and an output end for optical signals, and the output end of each optical add-drop multiplexer connects with the input end of its adjacent optical add-drop multiplexer.

17.An optical changing assembly comprising:

at least one unit including:

a first ferrule holding a first input fiber and a first output fiber therein;

a first GRIN lens facing the first ferrule opposite to said first input fiber and said first output fiber;

a second ferrule holding a second input fiber and a second output fiber therein;

a second GRIN lens facing the second ferrule opposite to said second input fiber and said second output fiber;

an optical crystal positioned between and beside said first GRIN lens and said second GRIN lens;

the first ferrule, the first GRIN lens, the optical crystal, the second GRIN lens and the second ferrule being aligned with all together in an axial direction of the unit; and

at least one filter defining a center wavelength of λ and applied unto the first GRIN lens; wherein

a first multiplexed light enters the first input fiber is reflected, by said filter, toward and enters the first output fiber except a signal of λ penetrates the filter, hits the crystal and is refracted, by said crystal, toward and enters the second output fiber; simultaneously a second light coming from the second input fiber includes another signal of λ hitting the crystal and refracted by said crystal, toward and entering the first output fiber to join the leaving first light.

18. The assembly as described in claim 17, wherein more than one units are assembled sequentially one another, and wherein the first output fiber of one unit is connected to the first input fiber of the next unit, and the second output fiber of said one unit is connected to the second input fiber of the said next unit.

19. The assembly as described in claim 17, wherein more than one units are assembled sequentially one another, and wherein the filter of each unit defines its own center wavelength different from those of other units.

20. The assembly as described in claim 17, wherein more than one units are assembled sequentially one another, and wherein only the first input fiber and the second input fiber of the first unit, and the first output fiber and the

second output fiber of the last unit are communicative with an exterior.